

What is claimed is:

1. A surgical instrumentation system to provide a surgical approach to a patient's spine, comprising:

a frame including a first portion lying in a first plane and a second portion lying in  
5 a second plane, said second plane forming an angle with said first plane; and

a number of retractors attached to a frame, at least one of said retractors being attached to said first portion of said frame and extending transversely to said first plane and at least one other of said retractors being attached to said second portion of said frame and extending transversely to said second plane.

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2. The system of claim 1, wherein said frame includes a number of members interconnected with one another and substantially encircling an opening therebetween.

3. The system of claim 2, wherein said number of members form an oval  
15 shape.

4. The system of claim 2, wherein said number of members includes first and second members, said first member lying in said first plane and including said at least one retractor attached thereto, said second member lying in said second plane and including  
20 said at least one other of said retractors attached thereto.

5. The system of claim 4, wherein said number of members further comprise a third member and a fourth member extending generally parallel to one another and between said first and second members, said at least a portion of said third and fourth

members lying in said first plane, and further comprising a distractor mechanism attached to each of said third and fourth members.

6. The system of claim 5, wherein each of said distractor mechanisms is  
5 attachable to said portion of said third and fourth members lying in said first plane.

7. The system of claim 1, wherein said angle is about 30 degrees.

8. The system of claim 1, further comprising a pair of distractor mechanisms  
10 each mountable to an anchor engageable to a respective one of adjacent vertebrae of the patient, said distractor mechanisms each further being attachable to said first portion of said frame.

9. The system of claim 8, wherein said distractor mechanisms each include an  
15 anchor extension removably engageable to said anchor.

10. The system of claim 9, wherein said distractor mechanisms each include a retractor portion positionable about a respective one of said anchor extensions.

20 11. The system of claim 10, wherein said retractor portion includes a tissue contacting surface along one side thereof and a receptacle along an opposite side thereof, said receptacle being configured to capture said anchor extension therein.

12. The system of claim 11, wherein said receptacle is formed between a pair  
25 of arms projecting from and extending along said opposite side of said retractor portion.

13. The system of claim 11, wherein said retractor portion includes a socket portion at a distal end thereof adapted to fixedly mount said retractor portion to said anchor.

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14. The system of claim 8, wherein said anchor is a multi-axial screw.

15. The system of claim 1, wherein in an operative position said first portion of said frame is adapted to lie along the posterior side of the spine and said second portion is adapted to lie along a posterior-lateral side of the spine.

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16. The system of claim 15, wherein in said operative position a first one of said retractors is attachable to said first portion and is positionable adjacent the spinal mid-line and a second one of said number of retractors is positionable in a posterior-lateral orientation relative to the spine.

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17. A surgical instrumentation system to provide a surgical approach to a patient's spine, comprising:

first and second anchors engageable to first and second vertebrae of the spine;

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a frame lying in at least one plane;

a retractor attachable to said frame, said retractor including a blade portion extending transversely to said at least one plane, said blade portion including a tissue contacting surface adapted to contact and retract tissue from the surgical approach;

a first distractor mechanism attachable to said frame and extending transversely to said at least one plane, said first distractor mechanism including a distal end engageable to

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said first anchor with said first distractor mechanism in pivotal relation to the first vertebra when said first anchor is engaged with the first vertebra; and

a second distractor mechanism attachable to said frame and extending transversely to said at least one plane, said second distractor mechanism including a distal end

5 engageable to said second anchor with said second distractor mechanism in pivotal relation to the second vertebra when said second anchor is engaged with the second vertebra.

10 18. The system of claim 17, wherein said first and second anchors are multi-axial screws.

15 19. The system of claim 18, wherein said multi-axial screws include a shank portion threadingly engageable to respective ones of the first and second vertebra and a yoke pivotally attached to said threaded shank.

20 20. The system of claim 19, wherein each of said first and second distractor mechanisms includes a socket portion at a distal end thereof adapted to fixedly engage said yoke of a respective one of said first and second anchors with said yoke remaining pivotal relative to said threaded shank.

21. The system of claim 17, wherein said first and second distractor mechanisms are each attachable to said frame to fix said first and second distractor mechanisms in position relative to the first and second vertebrae, respectively.

22. The system of claim 21, further comprising first and second adjustment mechanisms coupled to respective ones of said first and second distractor mechanisms, said adjustment mechanisms each including a first condition in locking engagement with said respective distractor mechanism to fixedly secure said distractor mechanism relative to said frame and the respective one of the first and second vertebrae, said adjustment mechanisms further each including a second condition in pivotal engagement with said respective distractor mechanism to permit said distractor mechanism to pivot relative to said frame.

23. The system of claim 22, further comprising first and second clamping devices mounted to said frame and releasably engageable to respective ones of said adjustment mechanisms.

24. The system of claim 23, further comprising a third adjustment mechanism coupled to said retractor, said third adjustment mechanism including a first condition in locking engagement with said retractor to fixedly secure said retractor relative to said frame, said third adjustment mechanism including a second condition in pivotal engagement with said retractor to permit said retractor to pivot relative to said frame.

25. The system of claim 24, further comprising a third clamping device mounted to said frame and releasably engageable to said third adjustment mechanism.

26. The system of claim 22, wherein said adjustment mechanisms each include:  
an adjustment handle;  
a shaft assembly extending from said adjustment handle; and

an engagement member at an end of said shaft assembly opposite said adjustment handle.

27. The system of claim 26, wherein said engagement member includes a number of teeth configured to selectively interdigitate and lockingly engage a number of teeth provided adjacent a proximal end of said distractor mechanism, said number of teeth engaging one another along concave-convex pivot path of said distractor mechanism.

28. The system of claim 27, wherein said shaft assembly includes an outer shaft and an inner shaft movably positioned within said outer shaft, said engagement member extending from a distal end of said inner shaft.

29. The system of claim 28, wherein said adjustment handle is linked with said inner shaft, said adjustment handle being rotatable to move said inner shaft and said engagement member between said first condition and said second condition.

30. The system of claim 27, wherein said adjustment mechanism includes a pair of plates at a distal end thereof and said distractor mechanism includes a pair of proximal flanges pivotally coupled to said pair of plates.

31. The system of claim 30, wherein:  
said pair of proximal flanges each include an arcuate slot defining a pivot path of said distractor mechanism;

said engagement member includes a slot extending along a longitudinal axis of said shaft assembly; and

said adjustment mechanism further comprises a roller pin coupled between said pair of plates and extending through said slot of said engagement member and said arcuate slots of said pair of flanges of said distractor mechanism.

5           32.     The system of claim 17, wherein each of said distractor mechanisms includes an anchor extension removably engageable to said respective one of said first and second anchors and a retractor portion including a receptacle to removably receive said anchor extension therein.

10           33.     The system of claim 32, further comprising a coupling member removably engageable to a proximal end of said anchor extension to capture said retractor portion on said anchor extension.

15           34.     The system of claim 32, wherein said retractor portion includes a first side defining a tissue contacting surface and an opposite second side, said retractor portion further including a pair of arms extending from said second side defining said receptacle therebetween.

20           35.     The system of claim 34, wherein said anchor extension is substantially cylindrical.

          36.     The system of claim 17, further comprising a second retractor attachable to said frame opposite said retractor.

37. The system of claim 36, wherein said retractor includes a blade portion defining a substantially flat tissue contacting surface extending along a longitudinal axis of said blade portion, and said second retractor includes a blade portion defining a concave tissue contacting surface extending along a longitudinal axis of said second retractor.

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38. The system of claim 37, wherein said frame includes a first portion lying in a first plane and a second portion lying in a second plane that is transversely oriented to the first plane.

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39. The system of claim 38, wherein said retractor is attachable to said first portion and said second retractor is attachable to said second portion.

40. The system of claim 39, wherein said first and second distractor mechanisms are attachable to said first portion of said frame.

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41. A surgical instrumentation system to provide a surgical approach to a patient's spine, comprising:

first and second anchors engageable to respective ones of first and second vertebrae of the spine;

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a frame lying in at least one plane;

a first and second distractor mechanisms attachable to said frame and extending transversely to said at least one plane, said first and second distractor mechanisms each including a distal end engageable to a respective one of said first and second anchors; and

first and second adjustment mechanisms coupled to respective ones of said first

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and second distractor mechanisms, said adjustment mechanisms each including a first



condition in locking engagement with said respective distractor mechanism to fixedly secure said distractor mechanism relative to said frame, said adjustment mechanisms further each including a second condition in pivotal engagement with said respective distractor mechanism to permit said distractor mechanism to move relative to said frame.

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42. The system of claim 41, further comprising a retractor attachable to said frame in a location along said frame between said first and second distractor mechanisms.

43. The system of claim 42, wherein said retractor includes a blade portion  
10 extending transversely to said at least one plane, said blade portion including a tissue contacting surface adapted to contact and retract tissue from the surgical approach.

44. The system of claim 41, wherein said first and second distractor  
mechanisms are coupled to said respective ones of said first and second anchors in pivotal  
15 relation to respective ones of the first and second vertebrae when said first and second anchors are engaged with respective ones of the first and second vertebrae and said adjustment mechanisms are in said second condition.

45. The system of claim 44, wherein said first and second anchors are multi-  
20 axial screws.

46. The system of claim 41, wherein said frame includes a first portion lying in a first plane and a second portion lying in a second plane forming an angle with said first plane.

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47. The system of claim 46, further comprising a first retractor attachable to said first portion and a second retractor attachable to said second portion opposite said first retractor, said first and second retractors being positionable along said frame between said first and second distractor mechanisms.

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48. The system of claim 47, wherein said first and second distractor mechanisms are attachable to said first portion of said frame.

49. A method for performing spinal surgery, comprising:

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making an incision for accessing a spinal disc space;

engaging anchors to vertebrae on each side of the spinal disc space;

positioning at least one retractor in the incision;

distracting the disc space;

mounting a distractor mechanism to each of the anchors;

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pivoting the distractor mechanisms relative to the vertebrae; and

attaching the distractor mechanisms to a frame extending between the distractor mechanisms to fix the distractor mechanisms relative to the vertebrae.

50. The method of claim 49, further comprising removing a distraction device

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from the disc space after attaching the distractor mechanisms to the frame.

51. The method of claim 49, wherein engaging anchors includes engaging multi-axial screws to the vertebrae.

52. The method of claim 51, wherein mounting the distractor mechanism includes fixedly mounting a distal end of the distractor mechanism to a yoke of the anchor, the yoke being pivotally mounted to a threaded shaft of the anchor.

5 53. The method of claim 49, further comprising attaching the at least one retractor to the frame.

54. The method of claim 49, wherein:  
making the incision includes making the incision in a location to provide a  
10 posterior-lateral approach to the spinal disc space; and  
positioning the at least one retractor includes positioning the at least one retractor along the spinal mid-line.

55. The method of claim 54, further comprising positioning a second retractor  
15 in the incision in a location offset laterally from the at least one retractor.

56. The method of claim 55, further comprising attaching the retractors to the frame.